



PATENT SEQUENCE LISTING

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<120> RATIONALLY DESIGNED ANTIBODIES

<130> 1087-2 CIP III

<140> US 10/737,290
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<150> US 10/452,590
<151> 2003-06-02

<150> US 10/307,724
<151> 2002-12-02

<150> US 10/006,593
<151> 2001-12-05

<150> US 60/251,448
<151> 2000-12-05

<150> US 60/288,889
<151> 2001-05-04

<150> US 60/294,068
<151> 2001-05-29

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<170> PatentIn version 3.2

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Gly Gly

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Gly Gly

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Gly Gly

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Gly Gly

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15

<400> 35

Val Val Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala Ala Arg Ala
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Pro Val

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Pro Asp

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<211> 54

<212> DNA

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Pro Val

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Ser Leu Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala Ala Arg Ala
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Pro Ile

<210> 42
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Gln	Thr	Ile	Glu	Gly	Pro	Thr	Leu	Arg	Gln	Trp	Leu	Ala	Ala	Arg	Ala
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Pro Asp

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 ctgcgcgaaac aggtggcaca gctgaaacag aaagttatga accatggcgg ttgtgctagt 180
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Arg Leu Glu Glu Lys Val Lys Thr Leu Lys Ala Gln Asn Ser Glu Leu
 20 25 30

Ala Ser Thr Ala Asn Met Leu Arg Glu Gln Val Ala Gln Leu Lys Gln
 35 40 45

Lys Val Met Asn His Gly Gly Cys Ala Ser Gly Gln Ala Gly Gln His
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Ser

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Leu Ala Ala Arg Ala Xaa Xaa Trp Gly Gln Gly Thr
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caccagtcac	agaaaagcat	cttacggatg	gcatgacagt	aagagaatta	tgcatgtctg	960
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<210> 61
 <211> 18
 <212> PRT
 <213> artificial sequence

<220>
 <223> TPO mimetic with flanking amino acids

<400> 61

Asn	Pro	Ile	Glu	Gly	Pro	Thr	Leu	Arg	Gln	Trp	Leu	Ala	Ala	Arg	Ala
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Arg Gly

<210> 62
 <211> 41
 <212> DNA
 <213> artificial sequence

<220>
 <223> primer
 <400> 62
 taggatgcgg ccgcacaggt cttttttttt tttttttttt t 41

<210> 63
 <211> 24
 <212> DNA
 <213> artificial sequence

<220>
 <223> primer
 <400> 63
 ccatgtaggc tgtgcccggtg gatt 24

<210> 64
 <211> 24
 <212> DNA
 <213> artificial sequence

<220>
 <223> primer
 <400> 64
 ccacgggcac agcctacatg gagc 24

<210> 65
 <211> 54
 <212> DNA
 <213> artificial sequence

<220>
 <223> nucleic acid encoding TPO mimetic peptide flanking sequence
 <400> 65
 ttgccaatg aagggccgac gctgcggcaa tggctggcgg cgcgcgcgcc tggt 54

<210> 66
 <211> 18
 <212> PRT
 <213> artificial sequence

<220>
 <223> TPO mimetic peptide with flanking sequence
 <400> 66

Leu Pro Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala Ala Arg Ala
 1 5 10 15

Pro Val

<210> 67
<211> 472
<212> PRT
<213> artificial sequence

<220>
<223> Humanized antibody heavy chain

<400> 67

Met Lys Trp Ser Trp Val Ile Leu Phe Leu Leu Ser Val Thr Ala Gly
1 5 10 15

Val His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
20 25 30

Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Ile Phe
35 40 45

Ser Asn Tyr Trp Ile Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
50 55 60

Glu Trp Met Gly Glu Ile Leu Pro Gly Ser Gly Ser Thr Glu Tyr Thr
65 70 75 80

Glu Asn Phe Lys Asp Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser
85 90 95

Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
100 105 110

Tyr Tyr Cys Ala Arg Leu Pro Ile Glu Gly Pro Thr Leu Arg Gln Trp
115 120 125

Leu Ala Ala Arg Ala Pro Val Trp Gly Gln Gly Thr Leu Val Thr Val
130 135 140

Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Cys
145 150 155 160

Ser Arg Ser Thr Ser Glu Ser Thr Ala Ala Leu Gly Cys Leu Val Lys
165 170 175

Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu
180 185 190

Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu
195 200 205

Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Asn Phe Gly Thr
210 215 220

Gln Thr Tyr Thr Cys Asn Val Asp His Lys Pro Ser Asn Thr Lys Val
225 230 235 240

Asp Lys Thr Val Glu Arg Lys Cys Cys Val Glu Cys Pro Pro Cys Pro
245 250 255

Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro
260 265 270

Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val
275 280 285

Val Asp Val Ser Gln Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val
290 295 300

Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln
305 310 315 320

Phe Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln
325 330 335

Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly
340 345 350

Leu Pro Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro
355 360 365

Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr
370 375 380

Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser
385 390 395 400

Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr
405 410 415

Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr
420 425 430

Ser Arg Leu Thr Val Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe
435 440 445

Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys
450 455 460

Ser Leu Ser Leu Ser Leu Gly Lys
465 470

<210> 68
<211> 1419
<212> DNA
<213> artificial sequence

<220>
<223> nucleic acid encoding humanized antibody heavy chain

<400> 68
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gtccaactgg tgcaatccgg cgccgaggtc aagaagccag gggcctcagt caaagtgtcc 120
tgtaaagcta gcggtatat tttttctaatt tattggattc aatgggtgcg tcaggccccc 180
gggcagggcc tggaatgat gggtagatc ttaccgggct ctggtagcac cgaatatacc 240
gaaaatttta aagaccgtgt tactatgacg cgtgacactt cgactagtac agtatacatg 300
gagctctcca gctgcgatc ggaggacacg gccgtctatt attgcgcgcg ttgccaatt 360
gaagggccga cgctgcggca atggctggcg gcgcgcgcgc ctgtttgggg tcaaggaacc 420
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gctgtcctac agtcctcagg actctactcc ctgagcagcg tggtagccgt gccctccagc 660
aacttcggca cccagacctt cacctgcaac gtagatcaca agcccagcaa caccaaggtg 720
gacaagacag ttgagcgcaa atgttgtgtc gagggtccac cgtgcccagc accacctgtg 780
gcaggaccgt cagtcttctc cttcccccca aaacccaagg acaccctcat gatctcccgg 840

acccctgagg tcacgtgcgt ggtggtggac gtgagccagg aagaccccga ggtccagttc 900
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 ggcaaggagt acaagtgcaa ggtctccaac aaaggcctcc cgtcctccat cgagaaaacc 1080
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 tacacacaga agagcctctc cctgtctctg ggtaaata 1419

<210> 69
 <211> 236
 <212> PRT
 <213> artificial sequence

<220>
 <223> Humanized antibody light chain

<400> 69

Met Asp Met Arg Val Pro Ala Gln Leu Leu Gly Leu Leu Leu Leu Trp
 1 5 10 15

Leu Arg Gly Ala Arg Cys Asp Ile Gln Met Thr Gln Ser Pro Ser Ser
 20 25 30

Leu Ser Ala Ser Val Gly Asp Arg Val Thr Ile Thr Cys Gly Ala Ser
 35 40 45

Glu Asn Ile Tyr Gly Ala Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys
 50 55 60

Ala Pro Lys Leu Leu Ile Tyr Gly Ala Thr Asn Leu Ala Asp Gly Val
 65 70 75 80

Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr
 85 90 95

Ile Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Asn

100	105	110
Val Leu Asn Thr Pro Leu Thr Phe Gly Gln Gly Thr Lys Val Glu Ile		
115	120	125
Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp		
130	135	140
Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn		
145	150	155
Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu		
165	170	175
Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp		
180	185	190
Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr		
195	200	205
Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser		
210	215	220
Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys		
225	230	235

<210> 70
 <211> 711
 <212> DNA
 <213> artificial sequence

<220>
 <223> nucleic acid encoding humanized antibody light chain

<400> 70	
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gtcaccatca cctgcggcgc cagcgaaaac atctatggcg cgctgaactg gtatcaacag	180
aaacccggga aagctccgaa gcttctgatt tacgggtgcga cgaacctggc agatggagtc	240
ccttctcgct tctctggatc cggctccgga acggatttca ctctgaccat cagcagtctg	300
cagcctgaag acttcgctac gtattactgt cagaacgttt taaatactcc gttgactttc	360
ggacagggta ccaaggtgga aataaaaaga actgtggctg caccatctgt cttcatcttc	420

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ccgccatctg atgagcagtt gaaatctgga actgcctctg ttgtgtgcct gctgaataac 480
ttctatccca gagaggccaa agtacagtgg aagggtggata acgccctcca atcgggtaac 540
tcccaggaga gtgtcacaga gcaggacagc aaggacagca cctacagcct cagcagcacc 600
ctgacgctga gcaaagcaga ctacgagaaa cacaaagtct acgcctgcga agtcacccat 660
cagggcctga gctcgcccgt cacaaagagc ttcaacaggg gagagtgtta g 711

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<210> 71
<211> 22
<212> PRT
<213> artificial sequence

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<220>
<223> EPO mimetic with random flanking amino acids

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<220>
<221> MISC_FEATURE
<222> (1)..(2)
<223> Xaa is any amino acid

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<220>
<221> MISC_FEATURE
<222> (6)..(6)
<223> Xaa is any amino acid

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<220>
<221> MISC_FEATURE
<222> (15)..(15)
<223> Xaa is any amino acid

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<220>
<221> MISC_FEATURE
<222> (21)..(22)
<223> Xaa is any amino acid

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<400> 71

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Xaa Xaa Asp Tyr His Xaa Arg Met Gly Pro Leu Thr Trp Val Xaa Lys
1           5           10           15

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Pro Leu Gly Gly Xaa Xaa
20

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<210> 72
<211> 21
<212> DNA
<213> artificial sequence

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<220>

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<223> primer
 <400> 72
 taggatgcgg ccgcacaggt c 21

<210> 73
 <211> 39
 <212> DNA
 <213> artificial sequence

<220>
 <223> primer

<400> 73
 cacgcgcaca acacgtctag aracatccag atgacccag 39

<210> 74
 <211> 39
 <212> DNA
 <213> artificial sequence

<220>
 <223> primer

<400> 74
 cacgcgcaca acacgtctag agmcatccag ttgacccag 39

<210> 75
 <211> 39
 <212> DNA
 <213> artificial sequence

<220>
 <223> primer

<400> 75
 cacgcgcaca acacgtctag agccatccrg atgacccag 39

<210> 76
 <211> 39
 <212> DNA
 <213> artificial sequence

<220>
 <223> primer

<400> 76
 cacgcgcaca acacgtctag agtcatctgg atgacccag 39

<210> 77
 <211> 39
 <212> DNA

<213> artificial sequence

<220>

<223> primer

<400> 77

cacgcgcaca acacgtctag agatattgtg atgacccag

39

<210> 78

<211> 39

<212> DNA

<213> artificial sequence

<220>

<223> primer

<400> 78

cacgcgcaca acacgtctag agatrttgtg atgactcag

39

<210> 79

<211> 39

<212> DNA

<213> artificial sequence

<220>

<223> primer

<400> 79

cacgcgcaca acacgtctag agaaattgtg ttgacrcag

39

<210> 80

<211> 39

<212> DNA

<213> artificial sequence

<220>

<223> primer

<400> 80

cacgcgcaca acacgtctag agaaatagtg atgacgcag

39

<210> 81

<211> 39

<212> DNA

<213> artificial sequence

<220>

<223> primer

<400> 81

cacgcgcaca acacgtctag agaaattgta atgacacag

39

<210> 82
<211> 39
<212> DNA
<213> artificial sequence

<220>
<223> primer

<400> 82
cacgcgcaca acacgtctag agacatcgtg atgacccag

39

<210> 83
<211> 39
<212> DNA
<213> artificial sequence

<220>
<223> primer

<400> 83
cacgcgcaca acacgtctag agaaacgaca ctcacgcag

39

<210> 84
<211> 39
<212> DNA
<213> artificial sequence

<220>
<223> primer

<400> 84
cacgcgcaca acacgtctag agaaattgtg ctgactcag

39

<210> 85
<211> 39
<212> DNA
<213> artificial sequence

<220>
<223> primer

<400> 85
cacgcgcaca acacgtctag agatgttgtg atgacacag

39

<210> 86
<211> 22
<212> DNA
<213> artificial sequence

<220>
<223> primer

<400> 86

attaatacga ctcactatag gg 22

<210> 87
 <211> 20
 <212> DNA
 <213> artificial sequence

<220>
 <223> primer

<400> 87
 aattaaccct cactaaaggg 20

<210> 88
 <211> 59
 <212> DNA
 <213> artificial sequence

<220>
 <223> primer

<400> 88
 agccagccac tggcgcaggg ttgggccttc gatcgggttc ctgatgagga gctttggrg 59

<210> 89
 <211> 59
 <212> DNA
 <213> artificial sequence

<220>
 <223> primer

<400> 89
 agccagccac tggcgcaggg ttgggccttc gatcgggttt tgaataatga aaatagcag 59

<210> 90
 <211> 59
 <212> DNA
 <213> artificial sequence

<220>
 <223> primer

<400> 90
 agccagccac tggcgcaggg ttgggccttc gatcgggttg taaatgagca rcttaggag 59

<210> 91
 <211> 59
 <212> DNA
 <213> artificial sequence

<220>

<223> primer

<400> 91
agccagccac tggcgcaggg ttgggccttc gatcgggtta tagatgagga gcctgggmg 59

<210> 92
<211> 59
<212> DNA
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<220>
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<400> 92
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<210> 93
<211> 59
<212> DNA
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<220>
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<400> 93
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<210> 94
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<212> DNA
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<220>
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<400> 94
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<210> 95
<211> 58
<212> DNA
<213> artificial sequence

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<400> 95
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<210> 96
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<213> artificial sequence

<220>

<223> primer

<400> 96

agccagccac tggcgcaggg ttgggccttc gatcgggtta tagatcaggg acttaggg 58

<210> 97

<211> 58

<212> DNA

<213> artificial sequence

<220>

<223> primer

<400> 97

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<210> 98

<211> 59

<212> DNA

<213> artificial sequence

<220>

<223> primer

<400> 98

ccaaccctgc gccagtggct ggctgctcgc gctcgtggtg ggggtcccctc gaggttcag 59

<210> 99

<211> 59

<212> DNA

<213> artificial sequence

<220>

<223> primer

<400> 99

ccaaccctgc gccagtggct ggctgctcgc gctcgtggtg gaatcccacc tcgattcag 59

<210> 100

<211> 59

<212> DNA

<213> artificial sequence

<220>

<223> primer

<400> 100

ccaaccctgc gccagtggct ggctgctcgc gctcgtggtg ggggtccctga ccgattcag 59

<210> 101
 <211> 59
 <212> DNA
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<220>
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<400> 101
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<210> 102
 <211> 59
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 <213> artificial sequence

<220>
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<400> 102
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<210> 103
 <211> 59
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<220>
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<400> 103
 ccaaccctgc gccagtggct ggctgctcgc gctcgtggtg gagtsccaga yaggttcag 59

<210> 104
 <211> 59
 <212> DNA
 <213> artificial sequence

<220>
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<400> 104
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<210> 105
 <211> 59
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<220>
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<400> 105

ccaaccctgc gccagtggtt ggctgctcgc gctcgtggtg gggccccatc aaggttcag 59

<210> 106
<211> 59
<212> DNA
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<220>
<223> primer

<400> 106
ccaaccctgc gccagtggtt ggctgctcgc gctcgtggtg gggccccatc tcggttcag 59

<210> 107
<211> 102
<212> DNA
<213> artificial sequence

<220>
<223> oligonucleotide

<400> 107
aattcaagga gtttaattatg aaaaaaacgc cgattgcgat tgcggtggcg ctggcgggct 60
ttgcgaccgt ggcccaggcg gcctctagaa tctgcggccg ca 102

<210> 108
<211> 102
<212> DNA
<213> artificial sequence

<220>
<223> oligonucleotide

<400> 108
ctagtgcggc cgcagattct agaggccgcc tgggccacgg tcgcaaagcc cgccagcgcc 60
accgcaatcg caatgcggt ttttttcata attaactcct tg 102

<210> 109
<211> 36
<212> DNA
<213> artificial sequence

<220>
<223> primer

<400> 109
ggagtctaga taactgtggc tgcacatct gtcttc 36

<210> 110
<211> 37

<212> DNA
<213> artificial sequence

<220>
<223> primer

<400> 110
aggagcggcc gcttaacact ctcccctggt gaagctc 37

<210> 111
<211> 4883
<212> DNA
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<220>
<223> vector

<400> 111
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agatagggtt gagtggtggt ccagtttgga acaagagtcc actattaaag aacgtggact 180
ccaacgtcaa agggcgaaaa accgtctatc agggcgatgg ccactacgt gaaccatcac 240
cctaatacaag ttttttgggg tcgaggtgcc gttaaagcact aaatcggaac cctaaaggga 300
gcccccgatt tagagcttga cggggaaagc cggcgaaacgt ggcgagaaag gaagggaga 360
aagcgaaagg agcgggcgct agggcgctgg caagtgtagc ggtcacgctg cgcgtaacca 420
ccacaccgc cgcgcttaat gcgccgtac agggcgcgtc aggtggcact tttcggggaa 480
atgtgcgcgg aaccctatt tgtttatTTT tctaaataca ttcaaatatg tatccgctca 540
tgagacaata accctgataa atgcttcaat aatattgaaa aaggaagagt atgagtattc 600
aacatttccg tgtcgccctt attccctttt ttgcggcatt ttgccttcct gtttttgctc 660
accagaaaac gctggtgaaa gtaaaagatg ctgaagatca gttgggtgca cgagtgggtt 720
acatcgaact ggatctcaac agcggtaaga tccttgagag ttttcgcccc gaagaacgtt 780
ttccaatgat gagcactttt aaagtTctgc tatgtggcgc ggtattatcc cgtattgacg 840
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caccagtcac agaaaagcat cttacggatg gcatgacagt aagagaatta tgcagtgctg 960
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tggcaacaac gttgcgcaaa ctattaactg gcgaactact tactctagct tcccggcaac	1200
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cctacaccga actgagatac ctacagcgtg agctatgaga aagcgccacg cttcccgaag	2040
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ctcagcagca ccctgacgct gagcaaagca gactacgaga aacacaaagt ctacgcctgc	2940
gaagtcaccc atcagggcct gagctcgccc gtcacaaaga gcttcaacag gggagagtgt	3000
taagcgggccg cactagatat aattaaggag ataaatatga aatatctgct gccgaccgcg	3060
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ggggcacagc ggccctgggc tgctgttca aggactactt cccgaaccg gtgacggtgt	4020
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cctacatctg caacgtgaat cacaagccca gcaacaccaa ggtggacaag aaagttgagc	4200
ccaaatcttg tgacaaaact agtggccagg ccggccagca ccatcaccat caccatggcg	4260
cataccgta cgacgttccg gactacgctt ctaggaggg tgggtgctct gagggtggcg	4320
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 gtgggtgtctt tgcgtttctt ttatatgttg ccacctttat gtatgtattt tctacgtttg 4800
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<210> 112
 <211> 8
 <212> PRT
 <213> artificial sequence

<220>
 <223> part of mimetic

<400> 112

Gly Pro Thr Leu Arg Gln Trp Leu
 1 5

<210> 113
 <211> 18
 <212> PRT
 <213> artificial sequence

<220>
 <223> artificial CDR2

<220>
 <221> MISC_FEATURE
 <222> (2)..(2)
 <223> Xaa is any amino acid

<220>
 <221> MISC_FEATURE
 <222> (11)..(11)
 <223> Xaa is any amino acid

<400> 113

Gly Xaa Gly Pro Thr Leu Arg Gln Trp Leu Xaa Tyr Ala Gln Lys Phe
 1 5 10 15

Gln Gly

<210> 114

<211> 48
 <212> DNA
 <213> artificial sequence

<220>
 <223> primer

<220>
 <221> misc_feature
 <222> (26)..(27)
 <223> n is a, c, g or t

<400> 114
 cagccactgg cgcagggttg ggccmnnccc tcccatccac tcaagccc 48

<210> 115
 <211> 60
 <212> DNA
 <213> artificial sequence

<220>
 <223> primer

<220>
 <221> misc_feature
 <222> (25)..(26)
 <223> n is a, c, g or t

<400> 115
 ggccaaccc tgcgccagtg gctgnnktac gcacagaaat tccagggcag agtcaccatt 60

<210> 116
 <211> 354
 <212> DNA
 <213> artificial sequence

<220>
 <223> nucleotides encoding variable region of light chain

<400> 116
 gacatccaga tgaccagtc tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60
 atcacttgcc gggcgagtca gagtattagt agtttgctgg cctgggtatca gcagaaacca 120
 gggaaagctc ctaagctcct gatctataac ccgatcgaag gcccaaccct gcgccagtgg 180
 ctggctactc gcgctcgtgg tgggggtcca tcaagggtca gcggcagtgg atctgggaca 240
 gatttcactc tcaccatcag cagcctgcag cctgaagatt ttgcaactta ttactgccaa 300
 cagtataata gttaccctcc cactttcggc cctgggacca aagtggatat caaa 354

<210> 117
 <211> 233
 <212> PRT
 <213> human

<400> 117

Glu Val Gln Leu Leu Glu Gln Ser Gly Ala Glu Val Lys Lys Pro Gly
 1 5 10 15

Ser Ser Val Lys Val Ser Cys Arg Ala Ser Gly Gly Thr Phe Asn Asn
 20 25 30

Tyr Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp
 35 40 45

Met Gly Gly Ile Phe Pro Phe Arg Asn Thr Ala Lys Tyr Ala Gln His
 50 55 60

Phe Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Gly Thr Ala
 65 70 75 80

Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Ile Tyr Tyr
 85 90 95

Cys Ala Arg Gly Asp Thr Ile Phe Gly Val Thr Met Gly Tyr Tyr Ala
 100 105 110

Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ala Ala Ser
 115 120 125

Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr
 130 135 140

Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro
 145 150 155 160

Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val
 165 170 175

His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser
 180 185 190

Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile
 195 200 205

Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val
 210 215 220

Glu Pro Lys Ser Cys Asp Lys Thr Ser
 225 230

<210> 118
 <211> 212
 <212> PRT
 <213> human

<400> 118

Glu Leu Thr Gln Ser Pro Gly Thr Leu Ser Leu Ser Pro Gly Glu Arg
 1 5 10 15

Ala Thr Leu Ser Cys Arg Ala Ser His Ser Val Ser Arg Ala Tyr Leu
 20 25 30

Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu Ile Tyr
 35 40 45

Gly Thr Ser Ser Arg Ala Thr Gly Ile Pro Asp Arg Phe Ser Gly Ser
 50 55 60

Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg Leu Glu Pro Glu
 65 70 75 80

Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Gly Gly Ser Pro Trp Phe
 85 90 95

Gly Gln Gly Thr Lys Val Glu Leu Lys Arg Thr Val Ala Ala Pro Ser
 100 105 110

Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala
 115 120 125

Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val
 130 135 140

Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser
 145 150 155 160

Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr
165 170 175

Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys
180 185 190

Glu Val Thr His Gln Gly Leu Ser Leu Pro Val Thr Lys Ser Phe Asn
195 200 205

Arg Gly Glu Cys
210

<210> 119
<211> 22
<212> PRT
<213> artificial sequence

<220>
<223> TPO mimetic peptide

<220>
<221> MISC_FEATURE
<222> (4)..(5)
<223> Xaa can be any naturally occurring amino acid

<220>
<221> MISC_FEATURE
<222> (20)..(21)
<223> Xaa can be any naturally occurring amino acid

<400> 119

Gly Ile Phe Xaa Xaa Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala
1 5 10 15

Ala Arg Ala Xaa Xaa Gly
20

<210> 120
<211> 60
<212> DNA
<213> artificial sequence

<220>
<223> primer

<220>
<221> misc_feature
<222> (35)..(36)

<223> n is a, c, g or t

<220>

<221> misc_feature

<222> (38)..(39)

<223> n is a, c, g or t

<400> 120

agccagccac tggcgcaggg ttgggccttc gatmnnmng aagatccctc ccatccactc 60

<210> 121

<211> 60

<212> DNA

<213> artificial sequence

<220>

<223> primer

<220>

<221> misc_feature

<222> (34)..(35)

<223> n is a, c, g or t

<220>

<221> misc_feature

<222> (37)..(38)

<223> n is a, c, g or t

<400> 121

ccaaccctgc gccagtggct ggctgctcgc gctnnknnkg gcagagtcac cattaccgcg 60

<210> 122

<211> 215

<212> PRT

<213> artificial sequence

<220>

<223> antibody light chain

<400> 122

Glu Ile Val Leu Thr Gln Ser Pro Gly Thr Leu Ser Leu Ser Pro Gly
1 5 10 15

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Ser
20 25 30

Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu
35 40 45

Ile Tyr Gly Ala Ser Ser Arg Ala Thr Gly Ile Pro Asp Arg Phe Ser

50

55

60

Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg Leu Glu
65 70 75 80

Pro Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Gly Ser Ser Pro
85 90 95

Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala
100 105 110

Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser
115 120 125

Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu
130 135 140

Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser
145 150 155 160

Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu
165 170 175

Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val
180 185 190

Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Leu Pro Val Thr Lys
195 200 205

Ser Phe Asn Arg Gly Glu Cys
210 215

<210> 123

<211> 108

<212> PRT

<213> artificial sequence

<220>

<223> antibody light chain variable region

<400> 123

Glu Ile Val Leu Thr Gln Ser Pro Gly Thr Leu Ser Leu Ser Pro Gly
1 5 10 15

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Ser
 20 25 30

Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu
 35 40 45

Ile Tyr Gly Ala Ser Ser Arg Ala Thr Gly Ile Pro Asp Arg Phe Ser
 50 55 60

Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg Leu Glu
 65 70 75 80

Pro Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Gly Ser Ser Pro
 85 90 95

Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
 100 105

<210> 124

<211> 249

<212> PRT

<213> artificial sequence

<220>

<223> antibody heavy chain

<400> 124

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
 1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Ser Tyr
 20 25 30

Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45

Gly Gln Leu Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala Ala Arg
 50 55 60

Ala Asn Ser Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala
 65 70 75 80

Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Arg Leu Pro Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala
100 105 110

Ala Arg Ala Pro Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115 120 125

Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys
130 135 140

Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr
145 150 155 160

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
165 170 175

Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser
180 185 190

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
195 200 205

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys
210 215 220

Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys
225 230 235 240

Pro Ala Pro Glu Leu Leu Gly Gly Pro
245

<210> 125

<211> 128

<212> PRT

<213> artificial sequence

<220>

<223> antibody heavy chain variable region

<400> 125

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Ser Tyr
20 25 30

Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45

Gly Gln Leu Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala Ala Arg
 50 55 60

Ala Asn Ser Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala
 65 70 75 80

Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Arg Leu Pro Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala
 100 105 110

Ala Arg Ala Pro Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
 115 120 125

<210> 126
 <211> 22
 <212> PRT
 <213> artificial sequence

<220>
 <223> heavy chain CDR2 clone

<220>
 <221> MISC_FEATURE
 <222> (4)..(5)
 <223> Xaa can be any naturally occurring amino acid

<220>
 <221> MISC_FEATURE
 <222> (20)..(21)
 <223> Xaa can be any naturally occurring amino acid

<400> 126

Gly Ile Phe Xaa Xaa Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala
 1 5 10 15

Ala Arg Ala Xaa Xaa Gly
 20

<210> 127
 <211> 22

<212> PRT
<213> artificial sequence

<220>
<223> heavy chain CDR2 clone

<400> 127

Gly Ile Phe Ser Pro Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala
1 5 10 15

Ala Arg Ala Ala Gly Gly
20

<210> 128
<211> 22
<212> PRT
<213> artificial sequence

<220>
<223> heavy chain CDR2 clone

<400> 128

Gly Ile Phe Pro Gln Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala
1 5 10 15

Ala Arg Ala Lys His Gly
20

<210> 129
<211> 22
<212> PRT
<213> artificial sequence

<220>
<223> heavy chain CDR2 clone

<400> 129

Gly Ile Phe Pro Asn Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala
1 5 10 15

Ala Arg Ala Thr Gly Gly
20

<210> 130
<211> 22
<212> PRT
<213> artificial sequence

<220>
 <223> heavy chain CDR2 clone
 <400> 130
 Gly Ile Phe Lys Gly Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala
 1 5 10 15

Ala Arg Ala Pro Gly Gly
 20

<210> 131
 <211> 22
 <212> PRT
 <213> artificial sequence

<220>
 <223> heavy chain CDR2 clone

<400> 131
 Gly Ile Phe Pro Pro Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala
 1 5 10 15

Ala Arg Ala Ala Val Gly
 20

<210> 132
 <211> 22
 <212> PRT
 <213> artificial sequence

<220>
 <223> heavy chain CDR2 clone

<400> 132
 Gly Ile Phe Pro Arg Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala
 1 5 10 15

Ala Arg Ala Lys Leu Gly
 20

<210> 133
 <211> 22
 <212> PRT
 <213> artificial sequence

<220>
 <223> heavy chain CDR2 clone

<400> 133

Gly Ile Phe Pro Arg Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala
1 5 10 15

Ala Arg Ala Lys Leu Gly
20

<210> 134

<211> 22

<212> PRT

<213> artificial sequence

<220>

<223> heavy chain CDR2 clone

<400> 134

Gly Ile Phe Pro Tyr Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala
1 5 10 15

Ala Arg Ala Lys Arg Gly
20

<210> 135

<211> 42

<212> DNA

<213> artificial sequence

<220>

<223> primer

<400> 135

gacgcgcaca acacggagct cgaaattgtg ctgacccaga gc

42

<210> 136

<211> 44

<212> DNA

<213> artificial sequence

<220>

<223> primer

<400> 136

agacagttag cgccgtctag aattagcatt cgccgcggtt aaag

44

<210> 137

<211> 36

<212> DNA

<213> artificial sequence

<220>
 <223> primer

<400> 137
 gacgcgcaca acacgggccc gagcgtgttt ccgctg 36

<210> 138
 <211> 41
 <212> DNA
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<220>
 <223> primer

<400> 138
 agacagttag cgccgactag ttttatcgca gcttttcggt t 41

<210> 139
 <211> 41
 <212> DNA
 <213> artificial sequence

<220>
 <223> primer

<400> 139
 gagccgcacg agcccctcga gcaggtgcag ctggtgcaga g 41

<210> 140
 <211> 35
 <212> DNA
 <213> artificial sequence

<220>
 <223> primer

<400> 140
 gcaaagtgtg aggggccctt ggtgctcgcg ctgct 35

<210> 141
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<220>
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<400> 141
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agatagggtt gagtgttggt ccagtttgga acaagagtcc actattaaag aacgtggact 180

ccaacgtcaa agggcgaaaa accgtctatc agggcgatgg ccactacgt gaaccatcac	240
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gccccgatt tagagcttga cggggaaagc cggcgaaacgt ggcgagaaag gaagggaaga	360
aagcgaaagg agcgggcgct agggcgctgg caagtgtagc ggtcacgctg cgcgtaacca	420
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gataacaatt gaattcagga ggaatttaaa atgaaaaaga cagctatcgc gattgcagtg	2640
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 tccctccctc aatcggttga atgtcgccct tttgtcttta gcgctggtaa accatatgaa 4620
 ttttctattg attgtgacaa aataaactta ttccgtggtg tctttgcgtt tcttttatat 4680
 gttgccacct ttatgtatgt attttctacg tttgctaaca tactgcgtaa taaggagtct 4740
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<210> 142

<211> 239

<212> PRT

<213> artificial sequence

<220>

<223> recombinant Ab light chain

<400> 142

Met	Lys	Lys	Thr	Ala	Ile	Ala	Ile	Ala	Val	Ala	Leu	Ala	Gly	Phe	Ala
1				5				10					15		

Thr Val Ala Gln Ala Ala Glu Leu Glu Ile Val Leu Thr Gln Ser Pro

20

25

30

Gly Thr Leu Ser Leu Ser Pro Gly Glu Arg Ala Thr Leu Ser Cys Arg
 35 40 45

Ala Ser Gln Ser Val Ser Ser Ser Tyr Leu Ala Trp Tyr Gln Gln Lys
 50 55 60

Pro Gly Gln Ala Pro Arg Leu Leu Ile Tyr Gly Ala Ser Ser Arg Ala
 65 70 75 80

Thr Gly Ile Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe
 85 90 95

Thr Leu Thr Ile Ser Arg Leu Glu Pro Glu Asp Phe Ala Val Tyr Tyr
 100 105 110

Cys Gln Gln Tyr Gly Ser Ser Pro Trp Thr Phe Gly Gln Gly Thr Lys
 115 120 125

Val Glu Ile Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro
 130 135 140

Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu
 145 150 155 160

Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp
 165 170 175

Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp
 180 185 190

Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys
 195 200 205

Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln
 210 215 220

Gly Leu Ser Leu Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
 225 230 235

<210> 143

<211> 282

<212> PRT
<213> artificial sequence

<220>
<223> recombinant Ab heavy chain

<400> 143

Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Leu Ala
1 5 10 15

Ala Gln Pro Ala Met Ala Leu Glu Gln Val Gln Leu Val Gln Ser Gly
20 25 30

Ala Glu Val Lys Lys Pro Gly Ser Ser Val Lys Val Ser Cys Lys Ala
35 40 45

Ser Gly Gly Thr Phe Ser Ser Tyr Ala Ile Ser Trp Val Arg Gln Ala
50 55 60

Pro Gly Gln Gly Leu Glu Trp Met Gly Gln Leu Ile Glu Gly Pro Thr
65 70 75 80

Leu Arg Gln Trp Leu Ala Ala Arg Ala Asn Ser Arg Val Thr Ile Thr
85 90 95

Ala Asp Glu Ser Thr Ser Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg
100 105 110

Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg Leu Pro Ile Glu Gly
115 120 125

Pro Thr Leu Arg Gln Trp Leu Ala Ala Arg Ala Pro Val Trp Gly Gln
130 135 140

Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val
145 150 155 160

Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala
165 170 175

Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser
180 185 190

Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val

195 200 205
 Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro
 210 215 220
 Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys
 225 230 235 240
 Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp
 245 250 255
 Lys Thr Ser Gly Gln Ala Gly Gln His His His His His His Gly Ala
 260 265 270
 Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Ser
 275 280

<210> 144
 <211> 24
 <212> DNA
 <213> artificial sequence

<220>
 <223> primer

<400> 144
 aaaggtgccg ccgctcgctt tgca

24

<210> 145
 <211> 42
 <212> DNA
 <213> artificial sequence

<220>
 <223> primer

<220>
 <221> misc_feature
 <222> (13)..(14)
 <223> n is a, c, g or t

<220>
 <221> misc_feature
 <222> (16)..(17)
 <223> n is a, c, g or t

<400> 145
 ggcggcacct tttnknkta tgcgattagc tgggtgcgcc ag

42

<210> 146
 <211> 42
 <212> DNA
 <213> artificial sequence

<220>
 <223> primer

<400> 146
 ggcggcacct ttaacaacta tgcgattagc tgggtgcgcc ag

42

<210> 147
 <211> 128
 <212> PRT
 <213> artificial sequence

<220>
 <223> cloned antibody VH

<400> 147

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
 1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Ser Tyr
 20 25 30

Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45

Gly Gln Leu Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala Ala Arg
 50 55 60

Ala Asn Ser Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala
 65 70 75 80

Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Arg Leu Pro Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala
 100 105 110

Ala Arg Ala Pro Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
 115 120 125

<210> 148
 <211> 128

<212> PRT
<213> artificial sequence

<220>
<223> cloned antibody VH

<400> 148

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Asn Asn Tyr
20 25 30

Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Gln Leu Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala Ala Arg
50 55 60

Ala Asn Ser Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala
65 70 75 80

Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Arg Leu Pro Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala
100 105 110

Ala Arg Ala Pro Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115 120 125

<210> 149
<211> 128
<212> PRT
<213> artificial sequence

<220>
<223> cloned antibody VH

<400> 149

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Gly Glu Tyr
20 25 30

Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45

Gly Gln Leu Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala Ala Arg
 50 55 60

Ala Asn Ser Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala
 65 70 75 80

Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Arg Leu Pro Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala
 100 105 110

Ala Arg Ala Pro Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
 115 120 125

<210> 150
 <211> 128
 <212> PRT
 <213> artificial sequence

<220>
 <223> cloned antibody VH

<400> 150

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
 1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Gln Asp Tyr
 20 25 30

Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45

Gly Gln Leu Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala Ala Arg
 50 55 60

Ala Asn Ser Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala
 65 70 75 80

Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr
 85 90 95

Cys Ala Arg Leu Pro Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala
100 105 110

Ala Arg Ala Pro Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115 120 125

<210> 151
<211> 128
<212> PRT
<213> artificial sequence

<220>
<223> cloned antibody VH

<400> 151

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Pro Arg Tyr
20 25 30

Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Gln Leu Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala Ala Arg
50 55 60

Ala Asn Ser Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala
65 70 75 80

Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr
85 90 95

Cys Ala Arg Leu Pro Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala
100 105 110

Ala Arg Ala Pro Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
115 120 125

<210> 152
<211> 18
<212> PRT
<213> artificial sequence

<220>
<223> flanked TPO mimetic

<400> 152

Gln Leu Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala Ala Arg Ala
1 5 10 15

Asn Ser

<210> 153
<211> 871
<212> DNA
<213> human

<400> 153
gcaggattta gggcttggtc tctcagcatc ccacacttgt acagctgatg tggcatctgt 60
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caaataacct gaggtcttct gagataaata tagatatatt ggtgccctga gagcatcaca 180
taacaaccac attcctctc taaagaagcc cctgggagca cagctcatca ccatggactg 240
gacctggagg ttctcttttg tggaggcagc gctacaggta aggggcttcc tagtcctaag 300
gctgaggaag ggatcctggg ttagttaaag aggattttat tcacccctgt gtcctctcca 360
cagggtgtcca gtcccagggtg cagctgggtgc agtctggggc tgagggtgaag aagcctgggt 420
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gggtgcgaca ggcccctgga caagggttg agtggatggg agggatcatc cctatctttg 540
gtacagcaaaa ctacgcacag aagttccagg gcagagtcac gattaccgag gacgaatcca 600
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gtgcgagaga cacagtgtga aaaccacat cctgagagtg tcagaaaccc tgagggagaa 720
ggcagctgtg ccgggctgag gagatgacag ggtttattag gtttaaggct gtttacaaaa 780
tgggttatat atttgagaaa aaaagaacag tagaaacaag tacatactcc tctaatttta 840
agataattat tccattcaag agtcgtaata t 871

<210> 154
<211> 20
<212> PRT
<213> human

<400> 154

Tyr Tyr Tyr Tyr Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val
 1 5 10 15

Thr Val Ser Ser
 20

<210> 155
 <211> 711
 <212> DNA
 <213> human

<400> 155
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 gtcagagctc tggagaagag ctgctcagtt aggaccacaga ggaaccatg gaaaccccag 120
 cgcagcttct ctctctctg ctactctggc tcccaggtga ggggaacatg ggatggtttt 180
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 tgcagggcca gtcagagtgt tagcagcagc tacttagcct ggtaccagca gaaacctggc 480
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 ttcagtggca gtgggtctgg gacagacttc actctcacca tcagcagact ggagcctgaa 600
 gattttgcag tgtattactg tcagcagtat ggtagctcac ctcccacagt gattcagctt 660
 gaaacaaaaa cctctgcaag accttcattg ttactagat tataccagct g 711

<210> 156
 <211> 12
 <212> PRT
 <213> human

<400> 156

Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
 1 5 10

<210> 157
 <211> 447
 <212> DNA
 <213> artificial sequence

<220>
 <223> recombinant DNA encoding AB VH

<400> 157
atgaaatacc tattgcctac ggcagccgct ggattgttat tactcgctgc ccaaccagcc 60
atggcgcagg tgcagctggg gcagagcggc gcggaagtga aaaaaggcag cagcgtgaaa 120
gtgagctgca aagcgagcgg cggcaccttt agcagctatg cgattagctg ggtgcgccag 180
gcgccggggc agggcctgga atggatgggc cagctgattg aaggcccgac cctgcgccag 240
tggttggcgg cgcgcgcgaa cagccgcgtg accattaccg cggatgaaag caccagcacc 300
gcgtatatgg aactgagcag cctgcgcagc gaagataccg cgggtgtatta ttgcgcgcgc 360
ctgccgattg aaggcccgac cctgcgccag tggttggcgg cgcgcgcgcc ggtgtggggc 420
cagggcacca ccgtgaccgt gagcagc 447

<210> 158
<211> 150
<212> PRT
<213> artificial sequence

<220>
<223> recombinant Ab VH

<400> 158

Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Leu Ala
1 5 10 15

Ala Gln Pro Ala Met Ala Gln Val Gln Leu Val Gln Ser Gly Ala Glu
20 25 30

Val Lys Lys Pro Gly Ser Ser Val Lys Val Ser Cys Lys Ala Ser Gly
35 40 45

Gly Thr Phe Ser Ser Tyr Ala Ile Ser Trp Val Arg Gln Ala Pro Gly
50 55 60

Gln Gly Leu Glu Trp Met Gly Gln Leu Ile Glu Gly Pro Thr Leu Arg
65 70 75 80

Gln Trp Leu Ala Ala Arg Ala Asn Ser Arg Val Thr Ile Thr Ala Asp
85 90 95

Glu Ser Thr Ser Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu
100 105 110

Asp Thr Ala Val Tyr Tyr Cys Ala Arg Leu Pro Ile Glu Gly Pro Thr
 115 120 125

Leu Arg Gln Trp Leu Ala Ala Arg Ala Pro Val Trp Gly Gln Gly Thr
 130 135 140

Thr Val Thr Val Ser Ser
 145 150

<210> 159
 <211> 127
 <212> PRT
 <213> artificial sequence

<220>
 <223> recombinant Ab VH

<400> 159

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
 1 5 10 15

Ser Val Lys Val Ser Cys Arg Ala Ser Gly Gly Thr Phe Asn Asn Tyr
 20 25 30

Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45

Gly Gly Ile Phe Pro Phe Arg Asn Thr Ala Lys Tyr Ala Gln His Phe
 50 55 60

Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Gly Thr Ala Tyr
 65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Ile Tyr Tyr Cys
 85 90 95

Ala Arg Leu Pro Ile Glu Gly Pro Thr Leu Arg Gln Trp Leu Ala Ala
 100 105 110

Arg Ala Pro Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ala
 115 120 125

<210> 160
 <211> 390
 <212> DNA

<213> artificial sequence

<220>

<223> recombinant DNA encoding Ab Vk

<400> 160

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atggcgggaaa ttgtgctgac ccagagcccg ggcaccctga gcctgagccc gggcgaacgc      120
gcgaccctga gctgccgcgc gagccagagc gtgagcagca gctatctggc gtggtatcag      180
cagaaaccgg gccaggcgcc gcgcctgctg atttatggcg cgagcagccg cgcgaccggc      240
attccggatc gcttttagcgg cagcggcagc ggcaccgatt ttaccctgac cattagccgc      300
ctggaaccgg aagattttgc ggtgtattat tgccagcagt atggcagcag cccgtggacc      360
tttgccagg gcaccaaagt ggaaattaa                                     390
```

<210> 161

<211> 130

<212> PRT

<213> artificial sequence

<220>

<223> recombinant Ab Vk

<400> 161

```
Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Leu Ala
1           5           10           15
```

```
Ala Gln Pro Ala Met Ala Glu Ile Val Leu Thr Gln Ser Pro Gly Thr
20           25           30
```

```
Leu Ser Leu Ser Pro Gly Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser
35           40           45
```

```
Gln Ser Val Ser Ser Ser Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly
50           55           60
```

```
Gln Ala Pro Arg Leu Leu Ile Tyr Gly Ala Ser Ser Arg Ala Thr Gly
65           70           75           80
```

```
Ile Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu
85           90           95
```

```
Thr Ile Ser Arg Leu Glu Pro Glu Asp Phe Ala Val Tyr Tyr Cys Gln
100          105          110
```

Gln Tyr Gly Ser Ser Pro Trp Thr Phe Gly Gln Gly Thr Lys Val Glu
115 120 125

Ile Lys
130

<210> 162
<211> 107
<212> PRT
<213> artificial sequence

<220>
<223> recombinant Ab Vk

<400> 162

Glu Ile Val Leu Thr Gln Ser Pro Gly Thr Leu Ser Leu Ser Pro Gly
1 5 10 15

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser His Ser Val Ser Arg Ala
20 25 30

Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu
35 40 45

Ile Tyr Gly Thr Ser Ser Arg Ala Thr Gly Ile Pro Asp Arg Phe Ser
50 55 60

Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg Leu Glu
65 70 75 80

Pro Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Gly Gly Ser Pro
85 90 95

Trp Phe Gly Gln Gly Thr Lys Val Glu Leu Lys
100 105

<210> 163
<211> 272
<212> DNA
<213> artificial sequence

<220>
<223> primer

<400> 163

ccagccatgg cgcaggtgca gctggtgcag agcggcgcgg aagtgaaaa accgggcagc 60
agcgtgaaag tgagctgcaa agcgagcggc ggcaccttta gcagctatgc gattagctgg 120
gtgcgccagg cgccggggcca gggcctggaa tggatgggcg gcattattcc gatttttggc 180
accgcgaact atgcgcagaa atttcagggc cgcgtgacca ttaccgcgga tgaaagcacc 240
agcaccgcgt atatggaact gagcagcctg cg 272

<210> 164
<211> 271
<212> DNA
<213> artificial sequence

<220>
<223> primer

<400> 164
gttccagctc acggtcaccg gttccggaaa ataatctttc accaggcagc ccagcgccgc 60
ggcgccgcgc ctggtgcttt tgctgctcgg cgccagcggg aacacgctcg ggcctttggt 120
gctcgcgctg ctacagggtc cgggtggtgcc ctggccccc accggcgcgcg gcgcgcgcag 180
ccactggcgc agggctcgggc cttcaatcgg caggcgcgcg caataatata ccgcggtatc 240
ttcgctgcgc aggctgctca gttccatata c 271

<210> 165
<211> 274
<212> DNA
<213> artificial sequence

<220>
<223> primer

<400> 165
cgagtctaga ttacgggccg ccagcagtt cggcgcccg gcacggcggg caggtatggg 60
ttttatcgca gcttttcggg tccacttttt tatccacttt ggtgttgctc ggtttatggt 120
tcacgttgca aatataggtc tgggtgccca ggctgctgct cggcacggtc accacgctgc 180
tcaggctata caggcgctg ctctgcagca ccgcgggaaa ggtatgcacg ccgctgggtca 240
gcgcgcgcgt gttccagctc acggtcaccg gttc 274

<210> 166
<211> 236
<212> DNA
<213> artificial sequence

<220>

<223> primer

<400> 166

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ccagccatgg cggaaattgt gctgaccag agccgggca cctgagcct gagccgggc 60
gaacgcgcga cctgagctg ccgcgcgagc cagagcgtga gcagcagcta tctggcgtgg 120
tatcagcaga aaccggggcca ggcgcgcgc ctgctgattt atggcgcgag cagccgcgcg 180
accggcattc cggatcgctt tagcggcagc ggcagcggca ccgattttac cctgac 236
```

<210> 167

<211> 238

<212> DNA

<213> artificial sequence

<220>

<223> primer

<400> 167

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ctttcgcttc gcgcggataa aagttgttca gcaggcacac cacgctcgcg gtgccgcttt 60
tcagtgttca tcgctcggcg gaaaaataaa cacgctcggc gccgccacgg tgcgtttaat 120
ttocactttg gtgccttggc caaagggtcca cgggctgctg ccatactgct ggcaataata 180
caccgcaaaa tottccggtt ccaggcgggt aatggtcagg gtaaaatcgg tgccgctg 238
```

<210> 168

<211> 245

<212> DNA

<213> artificial sequence

<220>

<223> primer

<400> 168

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gtgctgatca ttagcattcg ccgcgggtta agcttttggc caccggcagg ctcaggccct 60
gatgggtcac ttgcacgca tacactttat gtttttcata atccgctttg ctcagggtca 120
gggtgctgct caggctatag gtgctatctt tgctatcctg ttcggtcacg ctttcctggc 180
tgttgcgcgt ctgcagcgcg ttatocactt tccactgcac tttcgcttcg cgcggataaa 240
agttg 245
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<210> 169

<211> 98

<212> PRT

<213> artificial sequence

<220>

<223> recombinant Ab VH

<400> 169

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Ser Ser Tyr
20 25 30

Ala Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Gly Ile Ile Pro Ile Phe Gly Thr Ala Asn Tyr Ala Gln Lys Phe
50 55 60

Gln Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg

<210> 170

<211> 96

<212> PRT

<213> human

<400> 170

Glu Ile Val Leu Thr Gln Ser Pro Gly Thr Leu Ser Leu Ser Pro Gly
1 5 10 15

Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Ser
20 25 30

Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu
35 40 45

Ile Tyr Gly Ala Ser Ser Arg Ala Thr Gly Ile Pro Asp Arg Phe Ser
50 55 60

Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg Leu Glu
65 70 75 80

Pro Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Gly Ser Ser Pro
85 90 95

<210> 171
<211> 177
<212> PRT
<213> artificial sequence

<220>
<223> recombinant Ab heavy chain

<400> 171

Glu Gly Gly Gly Ser Glu Gly Gly Gly Ser Glu Gly Gly Gly Ser Glu
1 5 10 15

Gly Gly Gly Ser Gly Gly Gly Ser Gly Ser Gly Asp Phe Asp Tyr Glu
20 25 30

Lys Met Ala Asn Ala Asn Lys Gly Ala Met Thr Glu Asn Ala Asp Glu
35 40 45

Asn Ala Leu Gln Ser Asp Ala Lys Gly Lys Leu Asp Ser Val Ala Thr
50 55 60

Asp Tyr Gly Ala Ala Ile Asp Gly Phe Ile Gly Asp Val Ser Gly Leu
65 70 75 80

Ala Asn Gly Asn Gly Ala Thr Gly Asp Phe Ala Gly Ser Asn Ser Gln
85 90 95

Met Ala Gln Val Gly Asp Gly Asp Asn Ser Pro Leu Met Asn Asn Phe
100 105 110

Arg Gln Tyr Leu Pro Ser Leu Pro Gln Ser Val Glu Cys Arg Pro Phe
115 120 125

Val Phe Ser Ala Gly Lys Pro Tyr Glu Phe Ser Ile Asp Cys Asp Lys
130 135 140

Ile Asn Leu Phe Arg Gly Val Phe Ala Phe Leu Leu Tyr Val Ala Thr
145 150 155 160

Phe Met Tyr Val Phe Ser Thr Phe Ala Asn Ile Leu Arg Asn Lys Glu
165 170 175

Ser

<210> 172
<211> 17
<212> PRT
<213> human

<400> 172

Cys Phe Gly Arg Lys Met Asp Arg Ile Ser Ser Ser Ser Gly Leu Gly
1 5 10 15

Cys

<210> 173
<211> 39
<212> PRT
<213> human

<400> 173

His Gly Glu Gly Arg Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu
1 5 10 15

Glu Ala Val Arg Leu Phe Ile Glu Trp Leu Lys Asn Gly Gly Pro Ser
20 25 30

Ser Gly Ala Pro Pro Pro Ser
35

<210> 174
<211> 30
<212> PRT
<213> human

<400> 174

His Ala Glu Gly Thr Phe Thr Ser Asp Val Ser Ser Tyr Leu Glu Gly
1 5 10 15

Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu Val Lys Gly Arg
20 25 30

<210> 175
<211> 34

<212> PRT
<213> human

<400> 175

His Ala Asp Gly Ser Phe Ser Asp Glu Met Asn Thr Ile Leu Asp Asn
1 5 10 15

Leu Ala Ala Arg Asp Phe Ile Asn Trp Leu Ile Gln Thr Lys Ile Thr
20 25 30

Asp Arg

<210> 176
<211> 29
<212> PRT
<213> human

<400> 176

His Ser Gln Gly Thr Phe Thr Ser Asp Tyr Ser Lys Tyr Leu Asp Ser
1 5 10 15

Arg Arg Ala Gln Asp Arg Val Gln Trp Leu Met Asn Thr
20 25

<210> 177
<211> 38
<212> PRT
<213> human

<400> 177

His Ser Asp Gly Ile Phe Thr Asp Ser Tyr Ser Arg Tyr Arg Lys Gln
1 5 10 15

Met Ala Val Lys Lys Tyr Leu Ala Ala Val Leu Gly Lys Arg Tyr Lys
20 25 30

Gln Arg Val Lys Asn Lys
35

<210> 178
<211> 130
<212> PRT
<213> human

<400> 178

Phe Ser Val Gly Leu Glu Thr Tyr Val Thr Ile Pro Asn Met Pro Ile
 1 5 10 15

Arg Phe Thr Lys Ile Phe Tyr Asn Gln Gln Asn His Tyr Asp Gly Ser
 20 25 30

Thr Gly Lys Phe His Cys Asn Ile Pro Gly Leu Tyr Tyr Phe Ala Tyr
 35 40 45

His Ile Thr Val Tyr Met Lys Asp Val Lys Val Ser Leu Phe Lys Lys
 50 55 60

Asp Lys Ala Met Leu Phe Thr Tyr Asp Gln Tyr Gln Glu Asn Asn Val
 65 70 75 80

Asp Gln Ala Ser Gly Ser Val Leu Leu His Leu Glu Val Gly Asp Gln
 85 90 95

Val Trp Leu Gln Val Tyr Gly Glu Gly Glu Arg Asn Gly Leu Tyr Ala
 100 105 110

Asp Asn Asp Asn Asp Ser Thr Phe Thr Gly Phe Leu Leu Tyr His Asp
 115 120 125

Thr Asn
 130

<210> 179
 <211> 21
 <212> DNA
 <213> artificial sequence

<220>
 <223> primer

<400> 179
 gctgccaac cagccatggc c

21

<210> 180
 <211> 23
 <212> DNA
 <213> artificial sequence

<220>
 <223> primer

<400> 180
atcaaaatca ccggaaccag agc 23

<210> 181
<211> 72
<212> DNA
<213> artificial sequence

<220>
<223> primer

<220>
<221> misc_feature
<222> (47)..(48)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (50)..(51)
<223> n is a, c, g, or t

<400> 181
ttccaaataa gaacttacat cactggtaaa ggtcccttca gcatgmnnmn ntctgcaca 60
ataatatatg gc 72

<210> 182
<211> 72
<212> DNA
<213> artificial sequence

<220>
<223> primer

<220>
<221> misc_feature
<222> (46)..(47)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (49)..(50)
<223> n is a, c, g, or t

<400> 182
ggccaagctg ccaaggaatt cattgcttgg ctggtgaaag gccgannknn ktggggccaa 60
gggaccacgg tc 72

<210> 183
<211> 50
<212> DNA

<213> artificial sequence
 <220>
 <223> primer
 <400> 183
 cagtgatgta agttcttatt tggaaggcca agctgccaag gaattcattg 50
 <210> 184
 <211> 50
 <212> DNA
 <213> artificial sequence
 <220>
 <223> primer
 <400> 184
 caatgaattc cttggcagct tggccttcca aataagaact tacatcactg 50
 <210> 185
 <211> 24
 <212> DNA
 <213> artificial sequence
 <220>
 <223> primer
 <400> 185
 tatgccatca gctgggtgcg acag 24
 <210> 186
 <211> 48
 <212> DNA
 <213> artificial sequence
 <220>
 <223> primer
 <220>
 <221> misc_feature
 <222> (23)..(24)
 <223> n is a, c, g, or t
 <220>
 <221> misc_feature
 <222> (26)..(27)
 <223> n is a, c, g, or t
 <400> 186
 tcgcaccag ctgatggcat amnnmnnngaa ggtgcctcca gaagccct 48
 <210> 187

<211> 23
<212> DNA
<213> artificial sequence

<220>
<223> primer

<400> 187
atcaaaatca ccggaaccag agc

23

<210> 188
<211> 65
<212> DNA
<213> artificial sequence

<220>
<223> primer

<220>
<221> misc_feature
<222> (40)..(41)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (43)..(44)
<223> n is a, c, g, or t

<400> 188
ctctgggctc caatcctgtc catcctgccc ccgaagcamn nmnnctctgc acaataatat

60

atggc

65

<210> 189
<211> 65
<212> DNA
<213> artificial sequence

<220>
<223> primer

<220>
<221> misc_feature
<222> (39)..(40)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (42)..(43)
<223> n is a, c, g, or t

<400> 189
ggatggacag gattggagcc cagagcggac tgggctgtnn knnktggggc caagggacca

60

cggtc 65

<210> 190
<211> 65
<212> DNA
<213> artificial sequence

<220>
<223> primer

<220>
<221> misc_feature
<222> (40)..(41)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (43)..(44)
<223> n is a, c, g, or t

<400> 190
ctggaggagc tgatccggtc catcttcctc ccaaagcamn nmntctcgc acaataatat 60

atggc 65

<210> 191
<211> 65
<212> DNA
<213> artificial sequence

<220>
<223> primer

<220>
<221> misc_feature
<222> (39)..(40)
<223> n is a, c, g, or t

<220>
<221> misc_feature
<222> (42)..(43)
<223> n is a, c, g, or t

<400> 191
agatggaccg gatcagctcc tccagtggcc tgggctgcnn knnktggggc caagggacca 60

cggtc 65

<210> 192
<211> 24
<212> DNA

<213> artificial sequence

<220>

<223> primer

<400> 192

tatgccatca gctgggtgcg acag

24

<210> 193

<211> 48

<212> DNA

<213> artificial sequence

<220>

<223> primer

<220>

<221> misc_feature

<222> (23)..(24)

<223> n is a, c, g, or t

<220>

<221> misc_feature

<222> (26)..(27)

<223> n is a, c, g, or t

<400> 193

tcgcaccag ctgatggcat amnnmnngaa ggtgcctcca gaagccct

48